

THE  
GEOLOGICAL MAGAZINE

OR

Monthly Journal of Geology.

WITH WHICH IS INCORPORATED

THE GEOLOGIST.

NOS. DCXIX TO DCXXX.

GEOLOGY DEPARTMENT,

BIRKBECK COLLEGE,

HENRY WOODWARD, LL.D., F.R.S., F.G.S., V.P.Z.S., F.R.M.S.

LATE OF THE BRITISH MUSEUM OF NATURAL HISTORY; PRESIDENT OF THE  
PALÆONTOGRAPHICAL SOCIETY; ETC.

ASSISTED BY

PROFESSOR J. W. GREGORY, D.Sc., F.R.S., F.G.S.

DR. GEORGE J. HINDE, F.R.S., F.G.S.

SIR T. H. HOLLAND, K.C.I.E., A.R.C.S., D.Sc., F.R.S., V.P.G.S.

JOHN EDWARD MARR, M.A., Sc.D. (Camb.), F.R.S., F.G.S.

SIR JETHRO TEALL, M.A., Sc.D. (Camb.), LL.D., F.R.S., F.G.S.

PROFESSOR W. W. WATTS, Sc.D., LL.D., M.Sc., F.R.S., F.G.S.

DR. ARTHUR SMITH WOODWARD, LL.D., F.R.S., F.L.S.,  
V.P.G.S.

NEW SERIES. DECADE VI. VOL. III.

JANUARY—DECEMBER, 1916.

LONDON:

DULAU & CO., LTD., 37 SOHO SQUARE, W.

1916.

STEPHEN AUSTIN AND SONS, LTD.  
PRINTERS, HERTFORD.

## LIST OF PLATES.

PLATE	FACING PAGE
I. Restored Skeleton of <i>Stenomylus hitchcocki</i> , Loomis . . . . .	1
II. <i>Saurostomus esocinus</i> , Agassiz; Upper Lias, Holzmaden . . . . .	51
III. Terebratulid Shell-structures . . . . .	56
IV. Map of the Fluvio-glacial Gravels, Thames Valley . . . . .	58
V. Portrait of Arthur Vaughan, B.A., D.Sc. . . . .	92
VI. Chalk Polyzoa . . . . .	100
VII. Two Obsidianites, Singapore . . . . .	145
VIII. Lower Lias Ammonite, Dorset . . . . .	196
IX. Tridymite and Quartz, Iceland . . . . .	209
X. Chalk Polyzoa . . . . .	243
XI. Portrait of Dr. John E. Marr, F.R.S. . . . . .	289
XII. Some Wealden Sands . . . . .	302
XIII. Pit and Mound Structures developed during Sedimentation . . . . .	542
XIV. Chalk Polyzoa . . . . .	339
XV. New Extinct Bird, South Carolina . . . . .	347
XVI. Volcanic Rocks, Iceland . . . . .	395
XVII. Triassic Fossils, Leicestershire . . . . .	420
XVIII. Chalk Polyzoa . . . . .	435
XIX. New Guinea Corals . . . . .	488
XX.        "        " . . . . .	488
XXI.       "       " . . . . .	529
XXII.     "       " . . . . .	536

## LIST OF ILLUSTRATIONS IN THE TEXT.

	PAGE
Trail and Underplight . . . . .	3
Wax and pitch . . . . .	5
Sketch-map of Permian formation in Maritime Alps . . . . .	10
Sections of Permian formation, Maritime Alps . . . . .	11
Map of West Cumberland . . . . .	18
Diagrams showing amount of water and sulphuric acid in St. Bees Sandstone . . . . .	19
Diagrams showing variation in number of punctæ of <i>Terebratula punctata</i> and <i>T. biplicata</i> . . . . .	55
Sections of overflow channels, Murk Mire Moor . . . . .	77
Plan of adoral surface of <i>Lovenia forbesi</i> . . . . .	102
Second figure for comparison . . . . .	103
Ball and pillow-form structures in rocks . . . . .	147
Shell-jointing in sandstone . . . . .	148
Ball structures in sandstone . . . . .	149
Sandstone 'ball', Tyddyn-main . . . . .	149
Contorted layers in sandstone . . . . .	150
Diagram showing curved cleavage . . . . .	153
Folded layers of sandstone and shale . . . . .	153
Sandstone in shale . . . . .	154
Map of crystalline rock-areas, Piedmont . . . . .	199
Drawing of aggregate of Pl. IX, Fig. 5 . . . . .	207
Drawing of a single quartz individual . . . . .	208
Map of South Wales Coal-field . . . . .	222
Locality map of New Zealand . . . . .	244
Sections of Monte Viso and Roccamelone . . . . .	251
Mandible of <i>Nautilus pompilius</i> . . . . .	261
Mandible of <i>Nautilus (Rhyncholithes butleri, n.sp.)</i> sp. . . . .	263
Diagram of distribution of temperature in depth . . . . .	269
Sketch-map of crystalline rock-areas, Northern Piedmont . . . . .	306
Stripped fossil denudation plain . . . . .	316
Zoecia of three Bryozoa from Norseman Limestone . . . . .	321
<i>Trogontherium</i> from Coptford . . . . .	323
Section of brick-pit, Barnwell Station . . . . .	341
Sketch-plan of Lanzo Valleys, Grajan Alps . . . . .	349

	PAGE
Section of liparite exposure . . . . .	392
Section showing outcrop of the Coral Rag and Amphill Clay . . .	399
Sketch-map of crystalline massif, Savona . . . . .	402
Sections of crystalline massif, Savona . . . . .	403
The Kegworth footprint . . . . .	422
Map of Voltri Group, Western Liguria . . . . .	448
Map and sections of ophiolitic groups, Eastern Liguria . . . .	491
Map of ophiolitic groups, Eastern Liguria . . . . .	492
<i>Dallina floridana</i> , Pourtales . . . . .	501
Section of coral, New Guinea . . . . .	530
Small glacier, showing the snow-line . . . . .	538
Diagram of earth's areas mapped in 1860 and 1916 . . . . .	568